

LUNAR NEWS

No. 65

September 2000



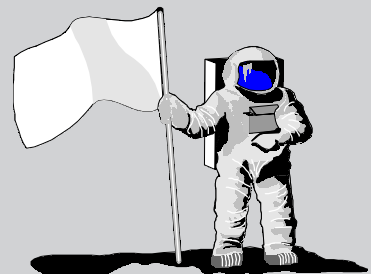
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CAPTEM Meeting - Oct. 10-11, 2000
New Views Workshop - Oct. 11-14, 2000

Lunar Science Initiative

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Lunar News Mission

The purpose of "Lunar News" is to provide a newsletter forum for facts and opinions about lunar sample studies, lunar geoscience, and the significance of the Moon in solar system exploration.

Editor's Notes

"Lunar News" is published by the Planetary Missions and Materials Branch, Earth Science & Solar System Exploration Division, Johnson Space Center of the National Aeronautics and Space Administration. It is sent free to all interested individuals. To be included on the mailing list, write to the address below. Please send to the same address any comments on "Lunar News" or suggestions for new articles.

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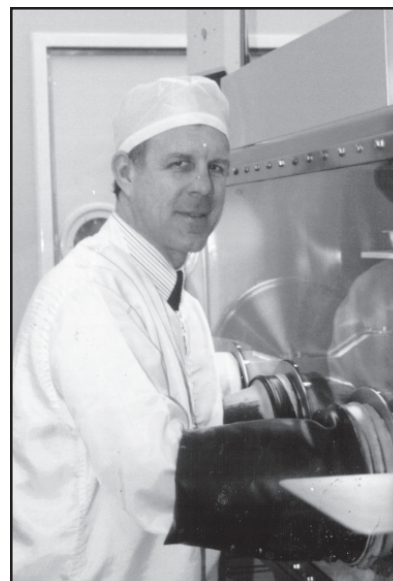
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New Astromaterials Curator

Dr. Carlton Allen recently joined NASA at JSC as the Astromaterials Curator. In this job Dr. Allen is responsible for the curation and distribution of extraterrestrial samples including the lunar rocks and soils, Antarctic meteorites, and cosmic dust. He also oversees preparations for future samples to be returned by spacecraft from a comet (Stardust), the solar wind (Genesis), and an asteroid (Muses C). Finally, Dr. Allen oversees JSC's research and development devoted to Mars sample return.

Dr. Allen's research career has spanned a wide range in planetary and terrestrial geology. As a graduate student and postdoc he focused on the Martian surface. Combining orbital imagery, field studies in Iceland and Canada, and laboratory analysis he pioneered models for volcano-ice

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Curator's Comments

Gary Lofgren
NASA JSC

The Curation Office is undergoing organizational changes. The new Chief Curator, Carl Allen, has been hired and you can read about him in this issue. The new Curation office will continue to curate lunar, meteorite, and cosmic dust samples, but will become more active in curation of new collections. The first of those will be returned by the Genesis Mission, solar particles, followed by the Stardust mission to collect comet particles and the Japanese mission, Muses C, from which we will receive asteroid material. The Genesis payload is being assembled in our newly constructed Class 10 clean room and should be on its way to hook up with the spacecraft in September. Significant new efforts will also examine how to quarantine and curate Martian samples. We will begin a program of testing of these new procedures.

Requests for lunar samples for scientific study remain strong. We have sent out 155 samples from the last two rounds of allocations in November of '99 and March of '00. Note that the next round of sample requests is due in Houston on the 11th of September for the CAPTEM meeting in mid October.

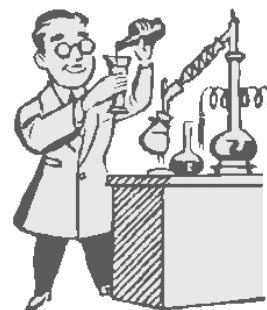
A long-term display sample has been sent to the University of Colorado Heritage Center in Boulder. This is the first sample available for viewing in the Rocky Mountain States. There will soon be another in Albuquerque at the LodeStar Astronomy Center at the New Mexico Museum of Natural History. The next long-term display sample, however, will go to the Western Australian Museum of Natural Science in Perth. We will also be sending a sample for display in Leicester, United Kingdom at the National Space Science Center. We have completed a new design for the display case that will be easier to build that will make it easier to produce long-term display samples in the future.

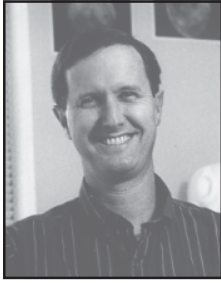
As this newsletter is being prepared, the third workshop "New Views of the Moon III: Synthesis of sample analysis, on-surface investigations, and remote sensing information" has been announced. Be sure to see the article by Brad Jolliff in this issue of Lunar News for an update on the Lunar Science Initiative.

continued from page 2

interactions and the genesis of Martian soil. His research on hydrothermal alteration led directly to a position at the Hanford nuclear site, studying the geochemical responses of groundwater and basalt to nuclear waste. Joining Lockheed Martin at JSC in 1991, Dr. Allen specialized in the study of space resources. He demonstrated, for the first time, the extraction of oxygen from lunar soils and the correlation of oxygen yield to major element composition. His research is now concentrated on astrobiology, specifically the microscopic physical biomarkers that may be our initial evidence of life in extraterrestrial samples.

For the past four years Dr. Allen worked with the Lunar Curator as science observer for sample processing and as a liaison to CAPTEM, the Curation and Planning Team for Extraterrestrial Materials. He has worked closely with the NASA and outside groups that regulate Curatorial operations. He currently represents JSC Curation on three national committees that are charged with making policy on future sample return missions. He has just published a complex study of sample sterilization and is researching issues of high-level biological safety at laboratories in the U.S. and France.





An Update on the Lunar Science Initiative, "New Views of the Moon"

by Brad Jolliff

Washington University, St. Louis

I'd like to update you on activities associated with the lunar science initiative "New Views of the Moon" enabled by combined remotely sensed and lunar sample data sets." The initiative began under the leadership of CAPTEM (Curation and Analysis Planning Team for Extraterrestrial Materials) and has now involved a significantly diverse cross section of the lunar and planetary science community. I will also emphasize what the goals of this initiative are and where it is heading.

Update. Despite pressures for many of us to be involved in things non-lunar, it has been great to see the excellent participation and presentations at recent events. The second *New Views* workshop, held in Flagstaff last September (see Wendell Mendell's article in *Lunar News* No. 64, Dec. 99) and convened by Lisa Gaddis (U.S. Geological Survey, Flagstaff) and Chip Shearer (University of New Mexico, Albuquerque), was in my opinion a great success. Topics at that workshop spanned a broad range and achieved a significant focus on integration of data sets. For LPSC 31, Clive Neal (University of Notre Dame) and fellow LPSC Program Committee members Lisa

Gaddis and Jeff Gillis (Washington University) organized two excellent sessions devoted to the Thermal and Magmatic Evolution of the Moon. These sessions were well attended and the presentations were outstanding. An upcoming issue of the *Journal of Geophysical Research - Planets* will be devoted to a collection of papers stemming from work presented at these sessions. And, a set of papers has already appeared in *JGR-P* related to the *New Views* workshops, with another set due out soon. Finally, we look forward to a third *New Views* workshop this coming October in Houston (see below).

If I sound excited about the activities associated with the *New Views* initiative, I am. But of course, it is the research of individuals and groups that form the basis for the excitement. This particular science initiative seeks to capitalize on timing, especially in relation to recent missions – *Clementine* and *Lunar Prospector* – and the superb data sets and exciting new results coming from them. This is a critical time for lunar science as we are faced with the opportunity to integrate these new data sets with what is known from an already rich base of sample knowledge, on-surface

investigations, and prior remote sensing. It is especially crucial for the sample community to demonstrate clearly the role of sample analysis and to integrate constraints from sample analysis into understanding new data sets and advancing our understanding of the Moon and how to explore a planet.

Another key aspect of timing is the progress of the Mars Exploration program and the possibility of sample return in the near future. Here again, the Moon and our experiences through over three decades of extensive research and exploration provide many lessons. From a programmatic perspective, one may consider three key elements of exploration: remote sensing, on-surface scientific investigation, and sample return and analysis. With the 20:20 vision of hindsight, we may conclude that we'd have done lunar exploration differently, seeking a different and better balance among the key elements.

In retrospect, the relationships between these key elements and how the different kinds of data sets feed back into one other and provide a synergistic value enhancement can be seen. For example, remote sensing guides site selection for on-surface

geologic investigations, which in turn provide validation and calibration sites for the remotely sensed data. Value-added remote-sensing results may then be extrapolated to regions beyond the landing sites. Insights gained from samples collected with geologic context are invaluable. When integrated carefully with compositional results from remote sensing, we can develop context to understand global processes such as volcanism and crustal and mantle compositional heterogeneity, and to determine the sources of materials that prove to be far-flung ejecta from big impacts and for materials that have been ejected and delivered to Earth as meteorites. We can also then better identify regions for which we do not have adequate sample representation for full understanding of the surface or the underlying geology.

Where is the lunar science initiative headed? By now you should have seen an announcement for the third *New Views* workshop, to be held at the LPI, October 12–15. This workshop will differ in format from previous ones. The workshop is related to planning efforts for a book that will attempt to capture the results of integrated data sets and their application to understanding the Moon's past as well as how to proceed with future exploration. The workshop is being organized around six topical areas that have emerged as key themes. It is intended that these six topical areas will form the

basis for chapters in the book. Abstracts and short workshop presentations will be aimed at plugging into a particular aspect of one of the topical areas, which are being developed in outline form by a group of planners. Briefly, the topical areas are as follows: (1) Lunar surface, Sun-Moon interactions, and lunar atmosphere; (2) Constitution of the lunar interior; (3) Thermal and magmatic evolution; (4) Chronology and cratering history; (5) Strategic exploration and utilization of the Moon; and (6) Earth-Moon system, comparative planetology, and lessons learned. The workshop goals are to define the content and organization of these topical areas, which will provide a basis to begin the book-writing effort.

I will conclude by restating the goals of the lunar science initiative at this stage. First, we seek to provide a forum for (and ultimately produce a book about) the integration of remotely sensed data sets, results of surface exploration, and sample analysis, which leads to a more complete understanding of the Moon, its past history, and future use and exploration. Second, we seek to show, through experience with the Moon, how to understand solar system bodies through a balanced exploration program. Through these efforts, we strive to have a positive influence on the future of planetary science and exploration, especially the Moon, Mars, and asteroids, in the near term. We seek to emphasize the importance of sample return and analysis, in

light of what we have learned about the Moon from the returned samples and what will be learned about Mars and other bodies from which samples are returned by future missions.

Brad Jolliff is a senior research scientist in the Department of Earth and Planetary Sciences at Washington University in St. Louis and current chair of the CAPTEM subcommittee for lunar samples.

Employee Highlights



Lisa Vidonic is the newly hired Facility Engineer for Planetary Materials Curation. Before moving to Houston last month, she had never lived anywhere except Richmond, Virginia. Her parents, Tom and Catherine Fletcher, moved to Richmond in 1970 and she was born in 1978. She has an older sister, Sara, who lives in Charlotte, North Carolina. Lisa says, "We are all Virginia Tech Hokies!"

Several exciting life changes have taken place during her last few months. Lisa graduated from Virginia Tech with a BS in Industrial & Systems Engineering in May 2000. She spent the month of June finalizing her wedding plans and was married to Nick Vidonic on July 8, 2000. After honeymooning in Jamaica, they drove from Richmond,

Virginia to Houston, Texas in mid-July and both began their new careers in late July.

Her husband graduated from Virginia Tech this past May as well. He is a Chemical Engineer for ExxonMobil in Baytown.

Nick and Lisa are both very excited about their new lives here in Houston, and they are anxious to learn more about this exciting city. They are proud to be Texans now and look forward to visiting other cities across the state as well.

We welcome Lisa to Planetary Material Curation!



Anne Kascak, daughter of Andrew and Jacqueline Susce, was born in Warren, Ohio. After graduating from Lordsdown High School, Anne married Ed Kascak, her high school sweetheart. After moving from Ohio to Alvin, Texas in 1980, Ed and Anne started a family. They have been married 20 years and have a son, Edward, who is 18, and a daughter, Roxanne, 16. Anne and Ed have opened their home to Meagan Sutton, also 18.

After both children were in school, Anne started her career in 1990 with the Alvin Independent School District as a Nurse's Assistant at Mark Twain Primary. In 1995, she started working at an additional school Longfellow Elementary. She feels that working at a school had many exciting and at times very difficult challenges, but the challenges were rewarding when you see the smiles you receive from each and every child you have helped in some way.

Anne is presently working in the Sample Control Center. She sees this as an opportunity for professional growth and is looking forward to the experience. Anne enjoys spending time with her family, reading, going to the beach, and lots of shopping.

We also welcome Anne to Planetary Materials Curation!

Employee Highlights



The JSC Earth Science and Solar System Exploration Division welcomes Dr. John Lisle to the Lockheed Martin Staff. John is a microbiologist who works directly for the Astrobiology research group. His expertise is particularly valuable to Curation as we prepare for

the challenges in planetary protection and ultra-clean processing of future samples from Mars. Dr. Lisle worked as a drinking water microbiologist for the City of Tampa Water Department, Tampa, FL for nine years before returning to the University of South Florida, Tampa for his Ph.D. During this time he was responsible for managing an environmental microbiology laboratory for Dr. Joan Rose, analyzing drinking water, wastewater, fresh water, ground water and marine waters for the presence and microbial ecology of bacteria, bacteriophage, enteroviruses and protozoan parasites. Prior to coming to JSC, he was a post-doctoral fellow at Montana State University's Department of Microbiology in the laboratory of Dr. Gordon McFeters. His current research interests and projects include the development rapid, non-culture based methods for the detection of bacteria and assessment of their physiological status, effects of microgravity on bacterial virulence (experiment to fly on shuttle mission STS-107), investigations of microbial interactions in mat systems associated with thermal springs in Yellowstone National Park and the impact of bacteria and viruses on microbial systems in the ice covered lakes of the Dry Valleys and the waters off the coast of McMurdo Station in Antarctica.



New ARES Office

Marilyn Lindstrom

Planetary Materials (now Astromaterials) curation and research have long been the focus of our division at JSC and an ivory tower in the center. Since 1995 Astromaterials and Human Exploration of Space have been the two missions of JSC, yet Astromaterials was not visible in the organization chart, being hidden in the large Space and Life Sciences Directorate. Under Carl Agee's leadership (and with the help of some of our university friends) we are becoming the Astromaterials Research and Exploration Science (ARES) Office. We will be on the organization chart and be much more visible both inside and outside NASA. We also will be getting new civil service hires to help us with the expanded workload of future missions. We have already hired Carl Allen as curator and Lindsey Keller to fill one of the science positions advertised in March. We are moving forward on both Astromaterials curation and Astromaterials-Astrobiology research.

Farewell to Meteorite Curator

Marilyn Lindstrom is leaving meteorite curation to work essentially full time as Education and Outreach Manager for our newly formed Astromaterials Research and Exploration Science (ARES) Office. Marilyn says that she has loved working with the curation staff, MWG, MSG, and all the PIs. She will keep a small role in curation web/publications. Marilyn's curation and outreach responsibilities had expanded so that there was never enough time and she had already drastically reduced my research activity. Carl Allen and Duck Mittlefehldt will handle meteorite curation until a permanent curator is hired. The transition will take place during September and October, but Marilyn will still be around as advisor (or historian) when needed. Farewell to Marilyn as Meteorite Curator. Hats off to you for a job well done and much success in your Education and Outreach endeavors!



Lab Tours



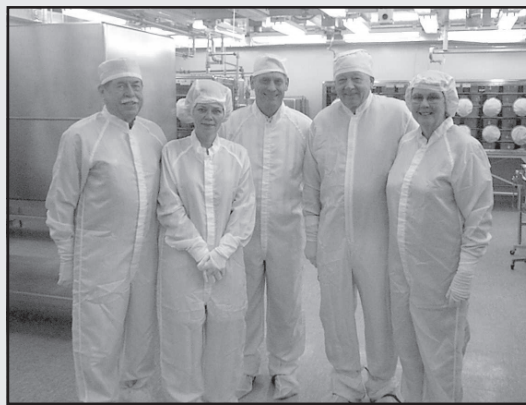
Above: Nancy Chabot, Dave Draper, and Cynthia Noirjean



Above: Gary Lofgren; Robert Wharton, AMES; and Dave Lindstrom



Above: Jodi Jordan, LPI Intern Coordinator; Matthew Vaughn; Lydia Boroughs; and LPI Intern, Bryan Boroughs



Above: John Syverson, Northwest Airlines Captain (Retired); Diane Syverson; Gary Lofgren; Brigadier General Thornton Becklund, Air National Guard (Retired); and his wife, Jan



Above: Sandra R. Lane, and NRC fellow, Melissa Lane



Above: Andrea Mosie (lower left), Mike Kelley (upper right), and Interns

Lab Tours



Above: Will Maxson, Lockheed Martin; wife, Anna; and mother-in-law, Stephanie Hethcote



Above: Dave Williams and the Canadian Space Agency Officials



Above: Gary Lofgren; Dave Beaty, JPL; and Dave Lindstrom



Above: Young Park, JPL; Carl Agee; and Wayne Richie, Langley



Above: Andrea Mosie; Mr. Nori Takama, Chiyoda of Japan; Steve Engle, LM Manager, Geosciences Section; Gloria Salinas, LM Manager, Science & Payloads



Above: Gwyn Smith, Kitty Ann Smith, North Smith, and Chad Enclawaght

Lab Tours



Above: Lockheed Martin Interns



Above: Carl Agee, Canadian Space Agency Officials, and Carl Allen



Above: Amy Kitmacher, U of H Geology Student and Pam Duncan, Chief of Security, Space Center Houston



Above: Carl Agee and Amanda Hendrix, Laboratory for Atmospheric and Space Physics, University of Colorado



Above: LPI Interns



Above: Thad Roberts, JSC Co-op Advanced Curation; Tessa Hall, VOE Student - DCC; and Nick Skytland, JSC Co-op

Lab Tours



Above: Cathy Weitz, NASA headquarters and Carl Agee



Above: Dana Lear, Lockheed Martin Project Manager



Above: Anne Kascak, LM (SCC) and Family



Above: Jubey and Elva Garza; Juan Garza, LM; and wife, Amada Garza



Above: Gary Lofgren and John W. Drebing, Jr., Author, Mastering Safety Communication



Above: JSC Imaging Group: Mark Sowa, Photographer and David Dehoyos, Photo Technician

Lab Tours



Above: Gary Lofgren and Alvin Fox



Above: Dave Draper and WLAN guy, Matthew Martin (DataScan, Inc.)



Above: Kevin Caruso, Author (Stankraft, Inc.)



Above: Earlene Greene, Budget (NASA); Carol Weeks, Budget (Syscom); Mike Sayre, Budget Asst. (Syscom); Pat Teale, SN; Barbara Hopkins, SN4; Joan Rourke, SN2 (Muniz)



Above: Dr. Michael Moyers, LLU and Premkumar Saganti, SN



How to Request Lunar Samples

NASA policies define lunar samples as a limited national resource and future heritage and require that samples be released only for approved applications in research, education, and public display. To meet that responsibility, NASA carefully screens all sample requests with most of the review processes being focused at the Johnson Space Center (JSC). Individuals requesting a lunar sample should follow the steps given below for the appropriate category of sample.

1. RESEARCH SAMPLES (including thin sections)

NASA provides lunar rock, soil, and regolith-core samples for both destructive and non-destructive analysis in pursuit of new scientific knowledge. Requests are considered for both basic studies in planetary science and applied studies in lunar materials beneficiation and resource utilization.

A. The sample investigator demonstrates favorable scientific peer review of the proposed work involving lunar samples. The required peer review can be demonstrated in either of two ways: (1) A formal research proposal recommended by NASA's Lunar and Planetary Geosciences Review Panel (LPGRP) or an equivalent scientific peer-review panel, within the past three years; (2) Submittal of reprints of scientific articles, as published in peer-reviewed professional journals that directly pertain to the specific sample requested.

B. The investigator submits a written request specifying the numbers, types, and quantities of lunar samples needed as well as the planned use of the samples. For planetary science studies, the sample request should be submitted directly to the Lunar Sample Curator at the following address:

Dr. Gary Lofgren
SN2/Lunar Sample
Curator
NASA/Johnson Space Center
Houston, TX 77058-3696
USA
Telephone: (281) 483-6187
Fax: (281) 483-5347

For engineering and resource-utilization studies, the sample request should be submitted to the Lunar Simulant Curator at the following address:

Dr. Douglas W. Ming
SN4/Lunar Simulant Curator
NASA/Johnson Space Center
Houston, TX 77058-3696
USA
Telephone: (281) 483-5839
Fax: (281) 483-5347

The Lunar Simulant Curator will assure that all necessary demonstration tests with simulated lunar materials have been satisfactorily completed. Requests determined to be sufficiently mature to warrant consideration for use of lunar materials will then be forwarded to the Lunar Sample Curator. For new investigators, tangible evidence of favorable peer review (step A) should be attached to the sample request. Each new investigator should also submit a résumé.

Investigators proposing the application of new analytical methodologies (not previously applied to lunar samples) also should submit test data obtained for simulated lunar materials. New investigators who are not familiar with lunar materials should consult *Lunar Sourcebook: A User's Guide to the Moon* (G. Heiken, D. Vaniman, and B. M. French, Eds.; Cambridge University Press, 736 pp.; 1991; ISBN 0-521-33444-6) as the best available reference on the chemical and physical properties of lunar materials. Investigators with access to the World Wide Web on the Internet also can find updated information at the following URL: <http://www-sn.jsc.nasa.gov/curator/curator.htm>. The home page cited above provides links to sample databases and other information of use to sample requestors.

C. The Lunar Sample Curator will research the availability of the requested samples and decide whether a unilateral action can be taken or an outside scientific review is required. Outside review is prescribed for all new investigators and for most established investigators except where returned (previously used) samples are being requested. For outside review, the Curator forwards the original request, with background information, to the Curation and Analysis Planning Team for Extraterrestrial Materials (CAPTEM), a standing committee of scientists who advise NASA on the care and use of lunar samples. CAPTEM checks for favorable peer review (step A) and appropriate sample selection (step B).

D. Given CAPTEM endorsement and concurrence by NASA

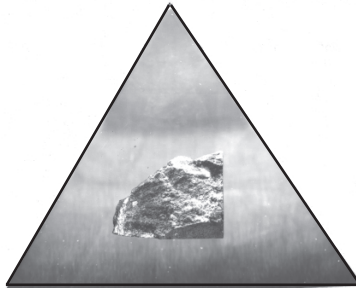
Headquarters, the Lunar Sample Curator will prepare a Lunar Sample Loan Agreement for signature by the investigator's institution. The agreement includes a simple security plan that prescribes precautions to minimize prospects for theft or unauthorized use of lunar samples.

E. Upon receipt of the properly executed loan agreement, the Lunar Sample Curator prepares the authorized samples and sends them to the investigator. Quantities less than 10 grams can be sent directly by U. S. registered mail to domestic investigators. Shipments to foreign investigators are sent by U. S. diplomatic pouch mail to the American embassy nearest the requestor's location. Quantities larger than 10 grams must be hand-carried by the investigator or his/her representative.

F. Continuation as a Lunar Sample Investigator. An investigator's privilege for retention and use of lunar samples is contingent upon continued good standing with the Office of the Curator. The investigator will remain in good standing by fulfilling the following obligations: (1) Maintenance of, and adherence to, the lunar sample loan agreement and security plan; (2) Timely cooperation with annual lunar sample inventory; (3) Timely cooperation with sample recalls.

2. PUBLIC DISPLAY SAMPLES

NASA provides for a limited number of rock samples to be used for either short-term and long-term displays at museums, planetariums, expositions, or professional events that are open to the public. Requests for such display samples are administratively



handled by the JSC Public Affairs Office (PAO). Requestors located in the United States should apply in writing to the following address:

Mr. Boyd E. Mounce
Lunar Sample Specialist
AP4/Public Services Branch
NASA/Johnson Space Center
Houston, TX 77058-3696
Telephone: (281) 483-8623
Fax: (281) 483-4876

Mr. Mounce will advise successful applicants regarding provisions for receipt, display, and return of the samples. All loans will be preceded by a signed loan agreement executed between NASA and the requestor's organization. Mr. Mounce will coordinate the preparation of new display samples with the Lunar Sample Curator.

3. EDUCATIONAL SAMPLES (disks and educational thin sections)

A. Disks

Small samples of representative lunar rocks and soils, embedded in rugged acrylic disks suitable for classroom use, are made available for short-term loan to qualified school teachers. Each teacher must become a certified user of the disks through a brief training program prior to receiving a disk. Educational sample disks are distributed on a regional basis from

NASA field centers located across the United States. For further details, prospective requestors should contact the nearest NASA facility as follows:

IF YOU LIVE IN:

<i>Alaska</i>	<i>Nevada</i>
<i>Arizona</i>	<i>Oregon</i>
<i>California</i>	<i>Utah</i>
<i>Hawaii</i>	<i>Washington</i>
<i>Idaho</i>	<i>Wyoming</i>
<i>Montana</i>	

NASA Teacher Resource Center

Mail Stop T12-A
NASA Ames Research Center
Moffett Field, CA 94035-1000
Phone: (415) 604-3574

IF YOU LIVE IN:

<i>Connecticut</i>	<i>New Hampshire</i>
<i>Delaware</i>	<i>New Jersey</i>
<i>New York</i>	<i>Maine</i>
<i>Pennsylvania</i>	<i>Maryland</i>
<i>Rhode Island</i>	<i>Massachusetts</i>
<i>Vermont</i>	
<i>District of Columbia</i>	

NASA Teacher Resource Laboratory

Mail Code 130.3
NASA Goddard Space Flight Center
Greenbelt, MD 20771-0001
Phone: (301) 286-8570

IF YOU LIVE IN:

<i>Colorado</i>	<i>North Dakota</i>
<i>Kansas</i>	<i>Oklahoma</i>
<i>Nebraska</i>	<i>South Dakota</i>
<i>New Mexico</i>	<i>Texas</i>

NASA Teacher Resource Room

Mail Code AP-4
NASA Johnson Space Center
Houston, TX 77058-3696
Phone: (281) 483-8696

IF YOU LIVE IN:

Florida
Georgia
Puerto Rico
Virgin Islands

**NASA Educators Resource
Laboratory**

Mail Code ERL
NASA Kennedy Space Center
Kennedy Space Center, FL
32899-0001
Phone: (407) 867-4090

IF YOU LIVE IN:

*Kentucky
North Carolina
South Carolina
Virginia
West Virginia*

NASA Teacher Resource Center

for Langley Research Center
Virginia Air and Space Center
600 Settler's Landing Road
Hampton, VA 23669-4033
Phone: (804) 727-0900 x757

IF YOU LIVE IN:

*Illinois Minnesota
Indiana Ohio
Michigan Wisconsin*

NASA Teacher Resource Center

Mail Stop 8-1

NASA Lewis Research Center
21000 Brookpark Road
Cleveland, OH 44135-3191
Phone: (216) 433-2017

IF YOU LIVE IN:

*Alabama Louisiana
Arkansas Missouri
Iowa Tennessee*

NASA Teacher Resource Center

for Marshall Space Flight Center
U.S. Space and Rocket Center
P.O. Box 070015
Huntsville, AL 35807-7015
Phone: (205) 544-5812

IF YOU LIVE IN:

Mississippi

NASA Teacher Resource Center

Building 1200
NASA John C. Stennis Space
Center
Stennis Space Center, MS 39529-
6000
Phone: (601) 688-3338

B. Thin Sections

NASA prepared thin sections of representative lunar rocks on rectangular 1 x 2-inch glass slides, with special safety frames, that are suitable for use in college and university courses in petrology and microscopic petrography for advanced geology students. Each set of 12 slides is accompanied by a sample disk (described above) and teaching materials. The typical loan period is two weeks, including round-trip shipping time. Each requestor must apply in writing, on college or university letterhead, to the following address:

SN2/Lunar Sample Curator
NASA/Johnson Space Center
Houston, TX 77058-3696
Telephone: (281) 483-6187
Fax: (281) 483-5347

For each approved user, the Curator will prepare a loan agreement to be executed between NASA and the requestor's institution prior to shipment of the thin-section package.

